

What is claimed is:

1. A surface acoustic wave device utilizing a Shear Horizontal wave, comprising:
 - a piezoelectric substrate; and
 - an interdigital transducer provided on the piezoelectric substrate, the interdigital transducer including at least three metal layers containing at least one first layer made of a metal with a density of about 15 g/cm³ or more as a major component and at least one second layer made of a metal with a density of about 12 g/cm³ or less, the volume of said first layer being in the range from about 20% to about 95% of the total volume of the interdigital transducer.
2. A surface acoustic wave device according to Claim 1, wherein the transducer contains at least two of the first layers.
3. A surface acoustic wave device according to Claim 1, wherein the metal with a density of at least about 15 g/cm³ constituting the first layer as a major component is one of Au, W, Ta, and Pt.
4. A surface acoustic wave device according to Claim 1, wherein the metal with a density of up to about 12 g/cm³ constituting the second layer as a major component is one of Ni, Cr, Cu, Al, and Ti.
5. A surface acoustic wave device according to Claim 1, wherein, in the layers that are within a range of thickness of up to approximately one-fourth of the total thickness of the interdigital transducer measured from the surface of the piezoelectric substrate of the metal layers constituting the interdigital transducer, the first layer has a volume of at

least 50% of the total volume.

6. A surface acoustic wave device according to Claim 1, wherein in the layers each having a thickness of at least about one-twentieth of the total thickness of the interdigital transducer in the metal layers constituting the interdigital transducer, the layer located nearest to the piezoelectric substrate is the first layer.

7. A surface acoustic wave device according to Claim 1, wherein the first layer is arranged at the surface of the interdigital transducer.

8. A surface acoustic wave device according to Claim 1, wherein in the interdigital transducer, the layer containing Au as a major component has a volume of from about 40% to about 80 % of the overall volume, and the layer containing Ni as a major component has a volume of from about 20% to about 60% of the overall volume.

9. A surface acoustic wave device according to claim 1, wherein in the interdigital transducer, the layer containing Au as a major component has a volume of from about 20% to about 50% of the overall volume, and the layer containing Al as a major component has a volume of from about 50% to about 80% of the overall volume.

10. A surface acoustic wave device according to claim 1, further comprising reflectors are arranged on both of the sides of the IDT.

11. A surface acoustic wave device according to claim 10, wherein the reflectors are grating type reflectors, and have

the configuration in which the plurality of electrode portions each are short-circuited in both of the ends thereof.

12. A surface acoustic wave device according to claim 10, wherein portions of the IDT where the reflectors are located have a propagation constant that is different from that of the remaining portion of the IDT.

13. A surface acoustic wave device according to claim 10, wherein the first layer includes a Ti film and the second layer includes an Au film.

14. A surface acoustic wave device according to claim 10, wherein the IDT has a four layer structure.

15. A surface acoustic wave device according to claim 14, wherein the four layer structure of the IDT includes films of Ti, Au, Ni, and Au.

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